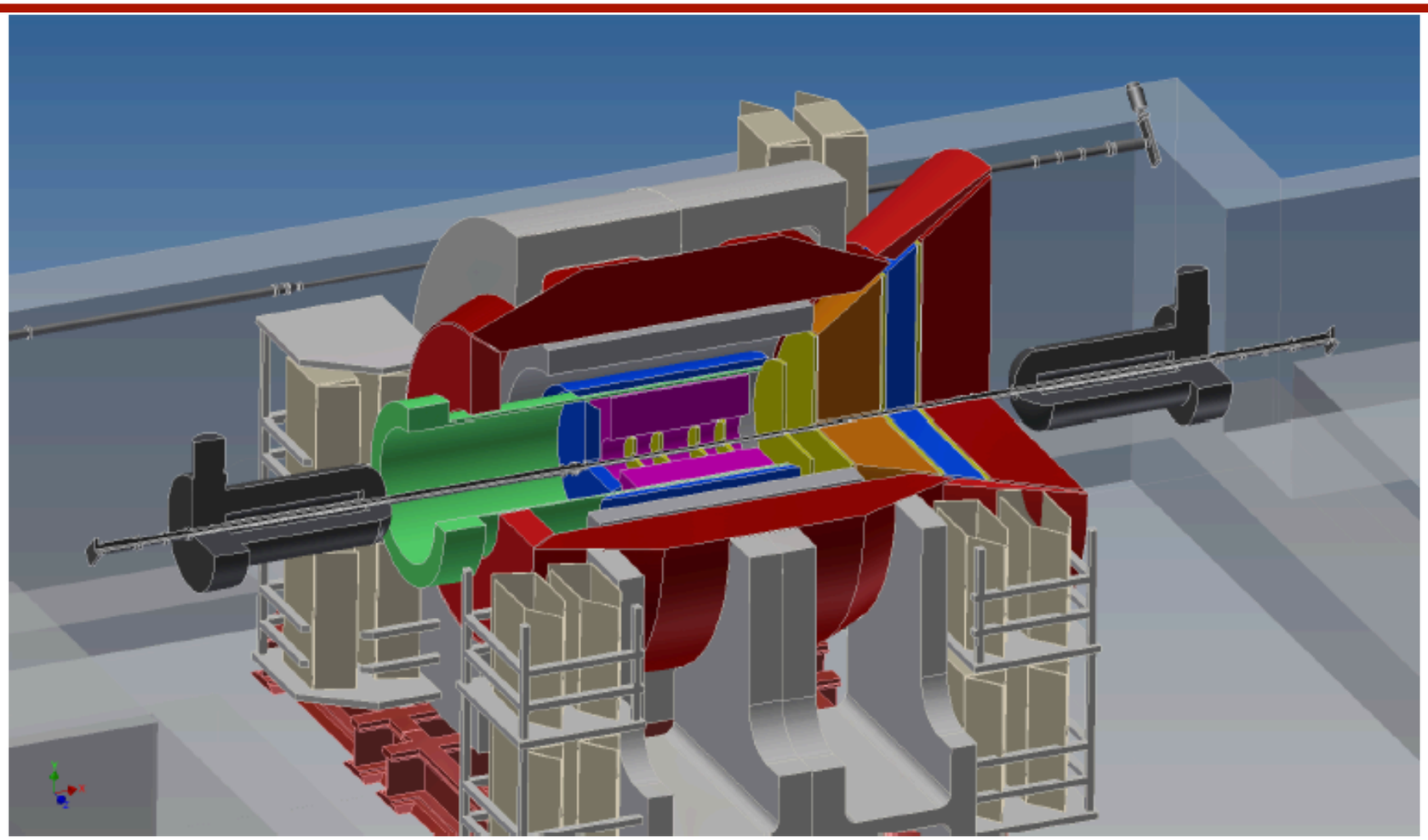
Stony Brook University



Simulation Plans For An EIC Detector Built Around The BaBar Solenoid

Nils Feege

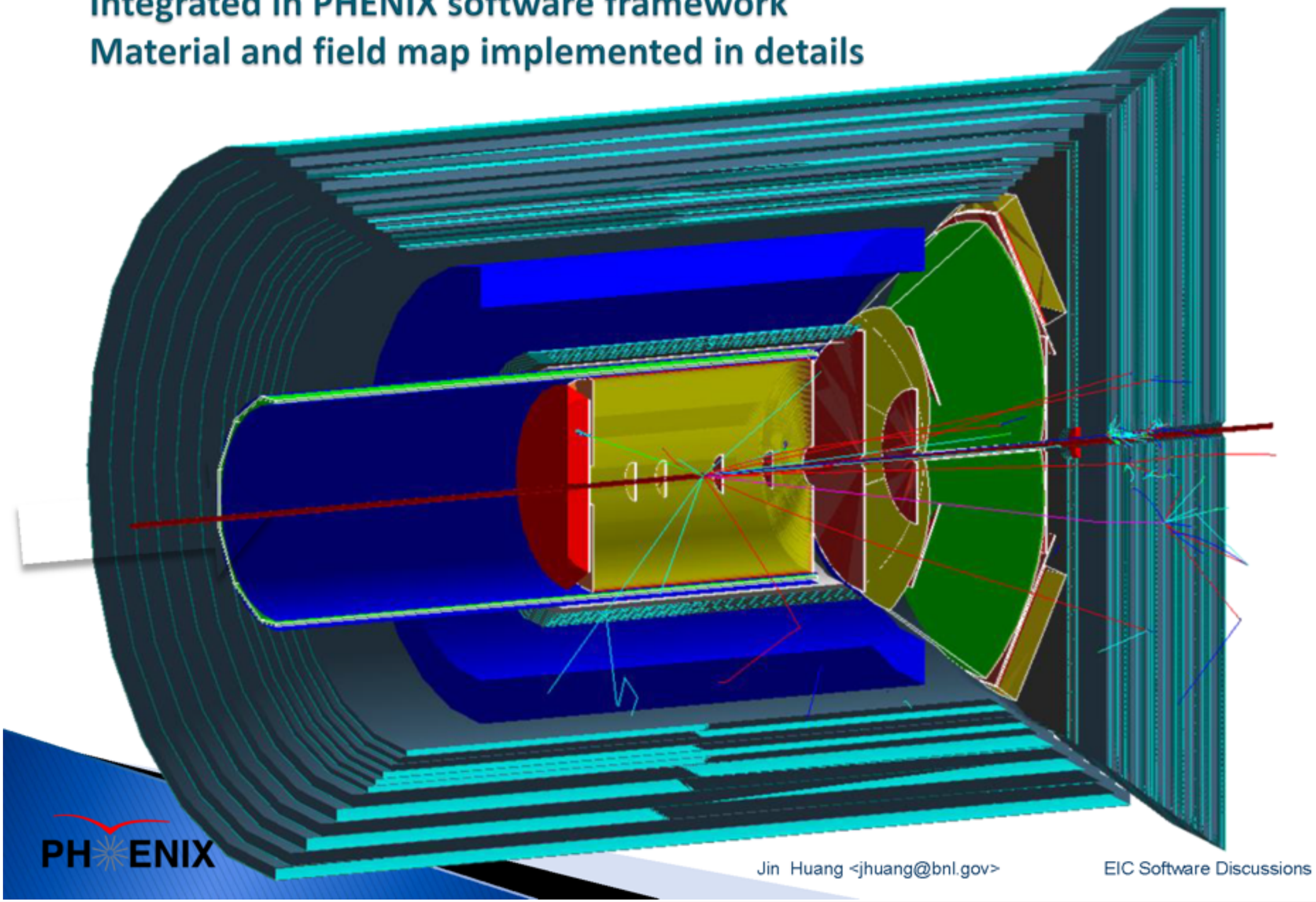
EIC Simulation Meeting, Stony Brook, September 30, 2014

Implementation in sPHENIX Geant4

An event display for SIDIS @ $x \approx 5\times10^{-3}$ and $Q^2=10$ $(GeV/c)^2$

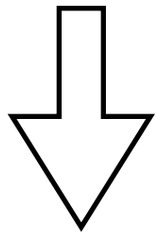
Integrated in PHENIX software framework

Material and field map implemented in details

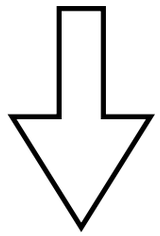


Roadmap

Create output objects for **all** sub-detectors based on MC truth information



Implement digitization for sub-detectors as needed as **separate modules**



Use simulation for detector performance studies and physics analyses

Steps In Progress

Tracking: **Jin**

- Simple tracking object based on MC Truth information

Gas-based RICH: **Nils**

- Add True PID, track and momentum information to output
- Create analysis library for RICH PID

Steel-scintillator HCAL (hadron side): **Yuji**

- Implement calorimeter geometry 'sPHENIX'-compatible
- Run sPHENIX jet reconstruction

Time Of Flight detector: **Yakov**

Next Steps

Lead tungstate crystal ECAL (electron side): **N/A**

- Implement calorimeter geometry based on the HCAL code

Lead-scintillator ECAL (hadron side): **N/A**

- Implement calorimeter geometry based on the HCAL code

Aerogel-based RICH: **N/A**

Central barrel DIRC: **N/A**

Zero Degree Calorimeter: **N/A**

Roman Pots: **N/A**